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191. c.
4.

PROGRESS

IN

AGRICULTURE.

WITH

A Description

OF THE

"MULTUM IN PARVO,"

AND OTHER

IMPORTANT IMPLEMENTS.

By SIGMA.

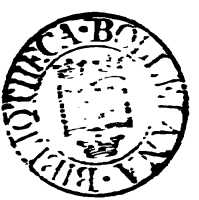
Quid faciat lætas segetes,
Hinc canere incipiam.

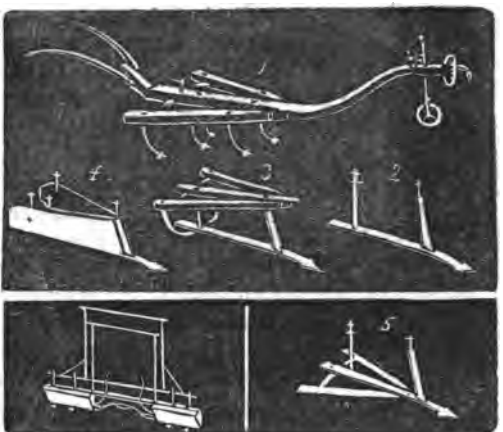
SEVENTH EDITION.

London:
JAMES RIDGWAY, PICCADILLY.
1858.

Price One Shilling.

191. c. 4.





THE "MULTUM IN PARVO."

PATENTED.

THIS Implement embraces "Much in Narrow space," and, for want of a more appropriate title, I have named it as above, and ne'er have forms so various and complete been brought in contact in one light frame, while by a single horse the work is done, and well effected too.

All late improvements in Implements like these have been consulted, and each form has been constructed on principles of Science, and wrought out with the greatest care.

A better or more simple Instrument than the Nidget, used for hops, cannot be found, on which was founded this Invention; the different forms of which, throughout the year, have been in use and most thoroughly tested on my land. The Frame-work of these Implements has been constructed so as to admit of any fittings being adjusted to form the numbers in the engraving as above, and hereafter to be mentioned; and, although a combination of these forms may seem impossible, each one, when fitted to the frame, is most complete. No Implements have I ever seen which do their work in better style than these.

Description.

The Frame-work consists of a central Beam, with neck bent forward and somewhat arched, in which is a passage for the stem of the self-cleaning iron wheel, (which is 10 inches in diameter), adjusted and secured by a pinching screw, which regulates the depth of cultivation. Stilts or handles to the central beam are now attached; two wing-bars towards the neck are fastened to this beam by bolts and iron hinges. These wing-

bars near their other ends have quadrant bars, the tails of which, through a mortise in the central beam, are so secured by setting screw, as to fix the wings at any width required.

Form No. 1.—The Drill Grubber or Scuffler.

Five tines, arranged as in the engraving, are to the frame attached with nuts and screws, with duck feet forged four inches and a half in width, and *slightly* pointing forwards; each other form of tine I've tried, and can find none so good as this. The shares when long have the effect of hardening the earth that they pass over; if made too narrow, a greater number than these I've named must be adjusted. When choked by couch and other weeds, the implement stands still.

To broad duck feet and tines so few all obstacles give place; with these a width two feet and more effectually is stirred; but should the drill be no wider than nineteen or twenty inches, no horse-hoe better could be used to cut and clean the soil.

No. 2.—The Subsoil or Scuffling Plough.

The five tines I shift from the frame, and by a nut and screw I fix a coulter, sharp and of an angular form, to the beam; and a shank behind

this. I rivet these to a flat foot sole shoe, which has a dipping double-feathered share.

Behind this coulter there are hinges to fasten the plough's mould boards, and mortises are in the sole shoe for the fittings described in Nos. 3, 4, 5.

No. 3.—The Deep Stirrer and Horse-Hoe.

In the subsoil plough, as above described, two additional coulters, with shares or blades six inches long and curved, are fixed to the expanding wing-bars.

Between the rows of growing crops this form will cultivate *deeply*. The long flat sole with projecting share draws the knife-like coulters in, by which all weeds are scuffled and cut quite close up to the crop. By this implement a deep season can be obtained.

The Horse-Hoe and Scuffler.

Like No. 1, this form consists of tines forged with duck feet. The only difference that exists is the substitution of scuffling coulters, with blades described in No. 3, in the place of the two last tines. To clean a drill two feet in width you must have three tines and two coulters; but should the drill not be so wide, one tine and two coulters, (which stir deeply and pulverize the
l,) are sufficient, cutting quite up to the crop.

No. 4.—The Double Mould-Board, or Ridge Plough.

This consists of the subsoil plough with two wings of sheet iron in addition, three feet long, fastened with pin and hinges to the sharp angular coulter of the subsoil plough. By means of shanks, attached with nuts and screws, these mould-boards are also fixed to the expanding wing-bars of the central beam.

No. 5.—The expanding Broad-share, or Paring Plough.

Two straight steeled blades, three inches wide and thirty inches long, like scissors with their edges reversed, are attached to the flat sole shoe, towards the feathered share, of the subsoil plough. The tails of the blades are fixed by transverse bars to the sole.

Weeds or Rubbish do not choke an Implement so simple, and the paring blades expand from fourteen inches up to thirty. By screwing up the nut which fastens the bars to the sole and keeps the paring blades at the required distance, the edges of the blades become hollow, when the only parts of the implement which rides upon the ground, are the cutting edges of the blades and the point of the feathered share.

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The Broad-share I have just described is used soon after harvest; but should the field be foul with couch and running grass, and the soil be sticky after frost, I adopt another plan. In addition to the paring blades, I use the mould-board wings, and fix the Blades to the sole in such a way that they project beyond these wings, paring well in front of the mould-boards; the mould-boards cast on each side all the long and tangling grass, which is thrown into ridges, a clean bare space being left between. But the Broad-share I have before described works equally as well.

These Implements, either on large or small holdings, will be found the most useful and economical of the day; each form is worked easily by a light horse.

These combinations will probably be found to have given an additional lift to agricultural machines: some new and original ideas are supposed to have been carried out in this Invention.

And now I presume I must explain the uses of each different form.

I commence with what I consider the most important, viz.—those that are to abolish Summer Fallows. The system of summer fallowing has been much practised in my immediate neighbour-

hood; the farmers labouring under the delusion of its being impossible to thoroughly clean foul land without ploughing five or six times, or turning and exposing the soil to the sun's rays; but I trust that, during the last summer, I have satisfactorily proved to them that the foulest land (*i.e.* land full of couch, thistles, charlock, running grass, &c.) can be most effectually cleaned without a single ploughing.

I *generally* plough before seeding. I subsoil also beneath the furrow slice so as to have a seed-bed full ten inches in depth. I do not always plough before seeding; if the land has been well pulverized, I plant directly upon it.

My "new fangled" ways were much laughed at when I undertook to clean foul land without five ploughings; but now that I can grow a fallow crop, which pays not only for cleaning the land, (now as clear of weeds as a garden) for the seed wheat, manures, and all other expenses, Farmers are beginning to enquire how this is done. I am now using land some of which was ploughed five times, by a tenant last summer. On one acre this autumn, I have measured three large cartloads of couch; thus these summer ploughings do not always clean the land.

Generally speaking, it is not necessary to make known the system of cultivation I pursued to cleanse and fallow foul land; but there are many

still in darkness, and during my travels last autumn through many hundred miles of the midland counties, I was much surprised to find how little the plan of hoeing, stirring, and pulverizing was practised between the rows of drilled crops. For miles and miles the beans were growing in a perfect wilderness of weeds: I hardly saw, during my whole journey, what I considered a clean fallow crop. They told me the Uley cultivator wiped out all stains; but no one can make me believe that such crops of weeds as I then saw do not exhaust the land of half its wealth; besides, what benefit can the after-crop receive from fallowing? Weeds I believe were created on purpose to oblige man to hoe and stir his crop; and it is this hoeing, stirring, and pounding Mother Earth, which causes her to yield up her stores.

Pulverize the soil, you let in air and moisture, and it is this air in union with moisture which corrodes and renders soluble the earthly ingredients for building up the structure of the future plants; ammonia is absorbed besides, which exerts in various ways so powerful an influence on the soil.

Now, let me ask, what is the effect of turning over and baking large clods of earth? It dries, it exhausts, it dissipates every particle of organic food capable of being absorbed by plants.

It is altogether a mistake that by baking

earth, mineral ingredients are rendered soluble: no chemical effect can be produced without the aid of moisture. Hard dry clods certainly become pulverized by rain, with this I find no fault. The benefit to be derived by turning over large dry clods is very questionable, and, in many instances, I believe, does actual injury. Soil is not composed of minerals alone; vegetable matters, stored up through ages, are with them combined. Exposing these to air and sun by continual summer ploughings causes all that is volatile to fly away, to be again brought down by rain, but on another's land.

Things so costly, and that have been collected with so much care, should be locked up. Do we expose and throw about our dung-heaps? they would in time become a worthless mass; and what is soil but a mixture of earth and vegetable matter in a less concentrated form? And why we should expose every particle of soil to the exhausting rays of Father Sol, to be robbed of everything combustible (or capable of decay), I can't conceive.

To reduce soil to the finest tilth, and thus cause it to retain its moisture, also to let in air, would hasten the decay of vegetable, and the corrosion of mineral ingredients; the stores that have accumulated would thus be reduced to food proper

for plants. This seems to me the thing that is required; and it is a system I adopt, and have always found to answer. In winter, when evaporation is at its lowest ebb and the sun almost powerless, then to plough and stir and pulverize by frost does good, and much advances the decomposition of the soil; but in summer, to turn over and expose its treasures to be dried up and to the four winds cast, is not my plan. At that time I would on every acre have a growing crop, which by means of its leaves, should rob the air each moment. The wealth that is absorbed by plants from air alone, is far beyond the comprehension of the world at large. So much for Summer Fallows!

The use of the Paring Plough, &c.

As soon as I am able, after harvest, I pare and shave my stubbles, two inches deep, with the hollow blades of the Expanding Broad-share, causing the surface of the land to be as clean and bare as if it were a table. Should it be desired to throw the parings into ridges, I merely attach the mould-boards to the coulter and wing-bars of the central beam. Should I wish to sow rape or turnips on these stubbles, either to be ploughed in as a source of carbon for a future crop, or consumed

when young by sheep, after paring I proceed to scuffle with the Grubber, No. 1. The Stirrer, No. 3, likewise cuts all the ground; and if, after paring two inches deep, the land be stirred twice more with No. 1, or No. 3, a fine tilth five inches deep, is procured without much labour. I then sow the seed, and my fields are clothed again with leaves, to rob the air.

I was much amused the other day with the effects of my neighbour's Broad-share. Four strong horses attached to a plough, with a share in front eighteen inches wide, were paring off the weeds. In a field close by, on another's land, one horse with No. 4 was at work, paring off and shaving with the greatest nicety and ease a slice two inches thick and six-and-twenty wide; the field being covered as thickly as it could be with running grass.

I made a calculation at the time, that this *one* horse was executing in far better style as much as it would have taken *six* horses to effect by the old fashioned mode of paring. So much for Practice founded on Science!

I need hardly explain the uses of the Subsoil Plough. It is so light and penetrating as to be worked with ease by one horse; it breaks up, from three to four inches deep, the hard pan beneath the furrow slice; so that on my stiff land I am

enabled to obtain a seed-bed ten inches deep, which, for crops growing late in summer, especially root crops, is of much greater importance than is generally supposed.

What causes whole crops of swedes to mildew but continued drought? Cultivate deeply and pulverize your soil, the roots extend and soon fill up with minutest fibres the fine moist mass; thus mildew is prevented, as I have proved. The same disease affects *late* peas in gardens.

Swedes and mangold, grown in drills and deeply stirred between the rows at intervals of a fortnight, fill between each interval of time the whole space with roots, as can be traced. This stirring causes them to grow most vigorously.

THE USES OF THE BEAN PLANTER (SEE DARK ENGRAVING), DRILL GRUBBER, AND DEEP STIRRER.

Supposing I want to grow a crop of Beans on a clover ley. In November I plough the land once, leaving it to be mellowed by the winter's frost. In February I harrow, level and plant the Beans with the Implement as engraved, two seeds in each hole, pressed tightly in, in close contact with earth. If in a hole one single Bean were planted, laterals most likely would be thrown from the single stalk, when in these the seed

would be shrivelled and ill-grown; but if two stalks grow from two Beans, no laterals will be produced, when the seed is finer and the sample more even. I plant my crop of Beans always in double rows six inches apart, and six inches from plant to plant, they thus stand six inches every way, so that with a narrow hoe these rows are cleaned by hand. Between these double rows are intervals twenty-six inches wide for fallowing, by hoeing and stirring deeply with the Drill Grubber and Deep Stirrer.

If the man be active with the Planter he will, on land prepared as above, in a day complete an acre, and sometimes one quarter more. The step in the implement is not required.

When cultivating these wide intervals I gradually increase the depth, till at last I have stirred and cut the soil seven inches deep, a great part of which, as I have described before, I throw over into the double rows of the Beans by means of the mould-board Plough. Across these furrows I lay the stalks at harvest; the current of air below dries the crop and renders it sooner ready for the stack, and my land is free for work.

The reaper likewise, standing in the furrow, is enabled to cut off the stalks close.

The loose mould thrown over on each side into the double rows preserves a moisture, and pre-

vents the earth from cracking, and in some degree keeps the crop upright; but, what is more, it smothers any small weeds that may have grown since the man cleaned the intervals between plant and plant with a narrow-edged hoe.

When the crop is off I pare and level down the rigdes with the Broad-share, and stir these with the Horse-hoe, No. 3. I pare again some short time hence across the ridges, when the land is in a position for me to commence planting wheat, which I do at eight inches apart every way, with the Implement described as the Corn, Bean, and Mangold Planter.

The land being level and free from clods, enables the Instrument to do its work in perfect style. But should this "Wheat Planting" not be understood, and therefore not in vogue, you may, after pursuing the course I have recommended, plough and seed it in any way you please. I strongly recommend the Dibbling.

You may be assured your land is clean, and that the expense of preparation has been small indeed, compared with a summer fallow.

My neighbour, who was, as I have stated, at work with his old-fashioned Broad-share, sowed his Beans broad-cast this year; it cost him 12*s.* per acre each time he hand-hoed them; his crop was just one sack less than half my crop in the

adjoining field. This is the same field he was using his Broad-share in, which was as completely covered with couch and running grass as it well could be. My field was perfectly clean on the crop being removed, and there is not now a weed to be seen, it was cultivated seven inches deep, at a little over *half the expense* of the sum it cost my neighbour to hand-hoe his broadcast beans.

I have had no experience in light soils, the land I have cultivated has always been a stiff clay.

One of the chief things in cultivation, is to promote decomposition of the soil, the great agents of which are air, warmth and moisture; pulverize during summer (when your crop admits of it) and you obtain these. Harden, bake, dry up and crack your land by leaving it alone, you retard corrosion and decay. To compensate in some degree for the hardening process that has been going on during the latter months of the growth of our cereal crops, and I do not see how we are to get over this exclusion of air and moisture under the present mode of cultivating cereals, unless the Lois Weedon system be more generally adopted; and this system, by which Mr. Smith has been able to grow forty bushels of first-class wheat per acre, by *covering* only half the land with plants, might I think by machinery be car-

ried out more efficiently and at less expense. How far the "Multum in Parvo" will assist the system, remains to be proved. Mr. Smith grows green crops in the wide intervals between the rows of corn; I presume this is to exhaust the land for the wheat, which is to occupy these intervals the following season; probably the rapid decomposition, caused by the continued digging and pulverizing, might render the organic ingredients too soluble for the cereal crop, causing mildew, at the same time the soil is left rich in inorganics, which the green crop does not exhaust. I would, immediately the crop is off the land, commence by frequent stirring to promote the solubility of the soil. I pare off two inches of the soil, collecting the weeds with the harrow. I then stir two or three times a little deeper each time. My land soon becomes in a more satisfactory state to me, than any number of summer plough-slicings would bring about.

Mr. Mechi.

To say that Mechi has effected little in his generation, is to assert what is false indeed. Would there were many like him; for seldom do we find a man with so clear a head, so active a mind, or one so fitted by nature to carry out in practice the original thoughts which his fertile

brain suggests. It is only by frequent experiments, even when attended at first with failure, that we finally arrive at truth. By continued application he has proved, that, even with present prices, remuneration may be obtained by employing wealth and sound good sense upon the soil Had he taught men nought but how to step out of the beaten path of custom, he would by this alone amply have fulfilled his mission; for every man has an appointed lot, and is as a stone built into the world's fabric. We cannot hope to reach your end *per saltum*, as it is said, in a single bound —nor succeed suddenly. The improvement of agriculture, the abatement of prejudices, the instilling of new ideas as to the manipulation and treatment of land, is no easy task. It is not by constantly adding fresh knowledge that we effect great ends. Nature in her works proceeds more gradually than this; too much crude food does not easily digest, it is only by continued rumination of our thoughts that we can hammer out perfection.

To teach those who are the muscle and sinew of our land, (whose future life must be spent upon the soil, and all whose earnings are to be gained from that source), Geometry, Geology, &c., seems to me the height of folly. How far

more reasonable and wise to teach the agricultural labourer the rudiments of learning,— to teach him to study causes and effects,—to ask himself the reason why things are so,—to get him to take an interest in, and understand well a few simple things; in after life, by constantly referring to these subjects, he would have mastered a few things perfectly, instead of imperfectly attempting all. He should not be a mere machine, as is too often the case with agricultural labourers, a *little* knowledge is sufficient for him if well taught.

Till all labour be carried on by steam, to teach the poor the elegancies of life, is to lift him up above his sphere, and make him discontented with his lot. To instruct him in the simple operations of the land, in the thorough use of implements, and how to grow the fruits by which life is sustained, would be of far more avail to him, in my ideas, than the crude and worthless trash that now is taught in village schools.

Although to us the power be given, we should use it mildly; the rich are in a measure responsible for the poor man's happiness; they are not our slaves,—they have hearts and heads as good as ours; we should treat them kindly, if for no other motive but our own interest: for through them it is we obtain the common necessaries of

life. To complain of the faults and ways of servants of the present day, is to blame ourselves; for it is we alone who make them what they are. But how to effect a cure is far beyond my comprehension. Excepting in a few rare instances, man is so selfish, that, when surrounded by his own comforts, he thinks and cares but little for the wants and miseries of the poorer class. This suggestion I would make: that when our National Schools are visited by Inspectors, lads of talent and research, above the common run of pupil teachers, (probably one hard head in five thousand might be met with), should be singled out and observed from time to time, and if found adequate to the post proposed, they should be selected, and, in an Institution appointed for the purpose, trained up as future back-bones of the State. Perchance we might alight on a Newton, Franklin, or a Herschell, for it is not the rich alone that have the brains. Among the poor I have known intellects so strong and searching, that, had they been trained to *any* amount of science, they would have been found equal to the occasion. It might reconcile and compensate in some degree our greatly to be valued sons of toil, should a member of their own class, when thoroughly instructed through the influence of the rich, be appointed to hold some high office in the realm.

THE

CORN, BEAN & MANGOLD PLANTER.

A FULL description of the Corn Planter having been given in my pamphlet, "On the New Method of Seeding Grain, &c."* I need not here enter into further detail. I will merely state that this Planter is an instrument that has been invented to carry out a more scientific and natural system of seeding than has hitherto been generally practised. It plants, or buries, at a depth suitable to the peculiarities of the soil and season, any required number of grains in each hole, which grains are pressed firmly into a solid bed by means of steel dibbers, the depth of which can be regulated. For instance, if a "Planter" with five depositors at eight or nine inches from one another be used (and this is the size best adapted for labourers in general) it would plant five rows at a time, the man then steps backwards, and if he makes the next five holes at eight or nine inches (at a greater or less distance if thought proper) these holes will then be eight or

* The sole agent of these implements, Mr. C. Powell, Hurstgreen, Sussex, also supplies the above pamphlet.

nine inches every way, so that when the plants, or stools appear, it will be seen that each stool has an equal space with the rest, which if so distributed over an acre of land will have a most marked effect both as regards the quality and quantity of the crop. If a field has been seeded in this way by the end of September or beginning of October, it will be found, that before Spring, the spaces will be entirely covered, that the stems creep so close to the soil as to appear perfectly flat, not standing up as thickly seeded broadcast or drilled wheat, and without any disposition to become "winter proud." I have advised my agent to have all the "Planters" made sufficiently strong, and with fittings large enough for Beans, Corn, Mangold, &c., instead of for Corn alone, as formerly; the additional expense being very trifling. The implement in this form is more complete. Improvements have been made lately in these "Planters." They are apparently very simple in construction, but it is surprising how much time and trouble it has been necessary to bestow upon them to bring them to their present state of perfection and simplicity. My agent assures me he has put a price on them as low as is consistent with good workmanship and material. They are now all manufactured under his immediate supervision.

THE BEAN PLANTER.

A Bean Planter that has given great satisfaction has been arranged with four depositors, thus, *i. e.*, two depositors at each end of the implement, six inches apart, with an interval of twenty-six inches between these double rows for horse-hoeing and deep stirring. This kind of Planter is also well suited for Peas; but in consequence of the wide intervals it is not suited for Corn.

This Planter (which is suitable for a stetch ten feet eight inches wide, on which four double rows can be dibbled, there being three wide intervals for deep stirring and horse-hoeing), covers a space of four feet and a half wide; it is worked up one side of the stetch, and down the other, the man completing rather more than an acre a day; he buries the seed exactly at the required depth, depositing the proper quantity in each hole, pressing the seed tightly in, and making the rows perfectly straight; on land, not warped, a line is used, (as described in one of the following letters by Mr. Crockford), which requires to he shifted every four double rows.—See this letter in the fifth edition of Corn Planter.

The greater the experience I have from year to year enables me to speak with increased con-

fidence of the system of dibbling. In a former part of this pamphlet I have spoken of the advantage to be derived from pressing many seeds of wheat in one hole, instead of only one grain, as has been recommended by some persons. I now wish to draw attention to the pressing of more than one bean into each hole. If one bean be planted separately on good land, it will branch or throw out two or more stalks; in most cases these branches will be thrown out a month later than the main stems, the consequence of which will be small pods and unripe shrivelled seed. I feel perfectly satisfied that there should be at least two beans in each hole, when probably there will be only one stem to each plant. I intend in future to adhere to this plan, and have ordered that all the Bean Slides be made to carry it out.

I use a very light and compact implement for hoeing and stirring at one operation, in the 26-inch rows; one horse draws it with ease, getting over about five acres a day, stirring the ground gradually deeper at each operation. It has five hoeing and stirring tines, arranged thus; two in front, with one behind to take the interval missed by the two front ones; the last two, behind all, being made to expand by a simple contrivance, to suit rows of different widths. The final

operation is to earth up the beans ; to accomplish this I take out the five tines, substituting for the tine which comes behind and between the front ones a strong slanting cutting share, to which is attached a stout flat horizontal iron sole, terminating in a broader share ; to the slanting share are attached wings of sheet-iron, working on hinges, which are made to expand in the same manner as the two last hoeing and stirring tines, so as to earth up or form furrows of different widths. With this breast, or ridge plough, I earth up the beans, throwing over the earth, previously pulverized, into the double rows of the beans, where it buries any small weeds, causes the soil to retain its moisture, and in a great measure prevents the crop being twisted by wind. This part, forming the breast plough, is complete in itself, so that it can be fixed to the frame at a moment's notice, without having to look about for any separate part ; while earthing up, the under edges of the wings cut off any weeds that may have grown since the last hoeing. I use it also for earthing up potatoes, and drawing furrows for turnips and mangold. I need only state that it is a simple, light, and compact implement, that it does its work in a superior manner, and is well worthy the notice of the public. By planting beans in double rows, at defined dis-

tances in the rows, with wide intervals for horse-hoeing, and using the above implement, I have this year cleared and fallowed the foulest land; and shall be able by the produce of the bean crop to pay for all artificial manure for the beans, and the following wheat crop, six or seven hoeings and stirrings, rent and taxes included, and my land being now as clean as a garden. As this implement forms part of those described in the invention styled "The Multum in Parvo," I will say no more of it in this place.

It is very encouraging to find that persons who commenced planting only a few acres last season have now increased their stock of "Planters," and have now 40, 50, 60, 70 acres, and upwards, so seeded this season. The "system" is certainly gaining ground. I find that it takes five teams to keep four Planters at work, four teams ploughing and one harrowing the land, before and after planting.

I intend shortly to introduce an implement for sowing artificial manures either broadcast or in drills, moist or dry, rough or pulverized; it somewhat resembles the one for which I obtained The Prize Medal at the Exhibition in 1851, but with improvements to overcome the stickiness of guano, and by its grinding action to enable it to distribute evenly rougher manures.

I have selected a few letters that have been lately received by Mr. POWELL, the Agent, as they throw some light on the system of "Planting." For many interesting letters see 5th and 6th editions of this pamphlet.

December 5th, 1858.

COPIED FROM "REPERTORY OF INVENTIONS," AUGUST 1, 1857.

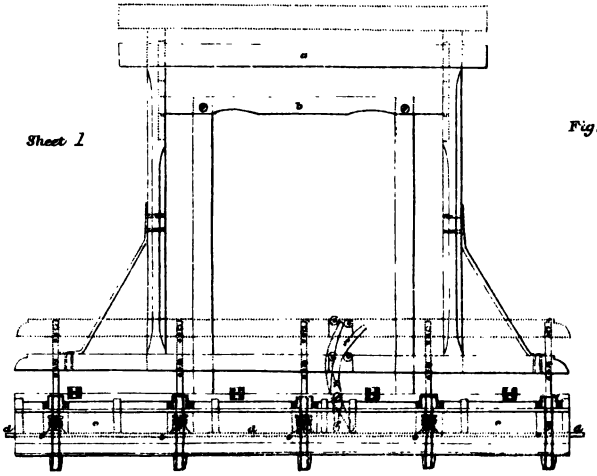
*Specification of the Patent granted to * * * * for Improvements in Dibbling Apparatus.*— Dated November 13, 1856.

WITH AN ENGRAVING.

To all whom these presents shall come, &c., &c. —This invention has for its object improvements in dibbling apparatus. For these purposes an angular trough is used to contain the grain or seeds, divided into as many compartments as there are dibbles. Within and at the bottom of the trough is a sliding bar, having a hole through it for each dibble, and it is by this hole that the grain or seed is allowed to fall when the bar has been moved into position to bring the holes in the bar to coincide with the inclined holes through the bottom of the trough, such inclined holes

Fig. 1

Front View



Sheet 1

Fig. 3

End View

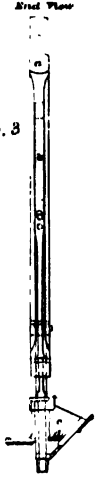
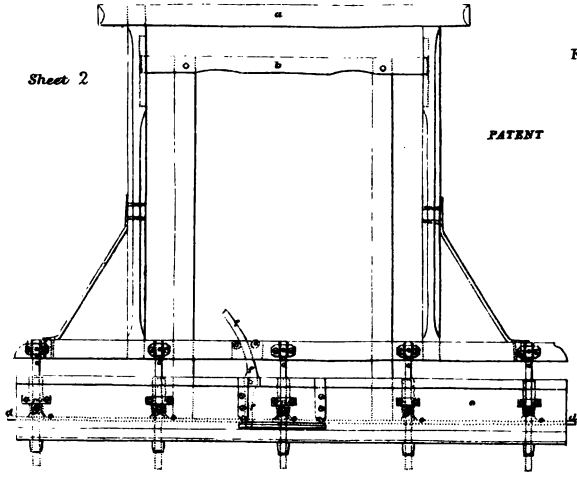


Fig. 2 Back View



Sheet 2

PATENT

Vertical Section

Fig. 4

communicating with the holes or passages through which the dibbles slide at the back of the trough.

In working with this apparatus, the dibbles are pressed into the earth, and raised up again whilst the trough and nozzles are retained down by means of the foot placed on a step. The raising of the dibble moves the sliding bar, and brings the holes therein to coincide with the inclined holes which communicate, as before stated, with those within which the dibbles move; the seed or grain will drop through to the holes made in the earth, (fixed brushes preventing more grain or seed falling than is contained in the holes of the sliding bar) the dibbles are then pushed down, and the seed is pressed to the bottom of each hole.

Having thus stated the nature of my said invention, I will proceed more fully to describe the manner of performing the same.

Description of the Drawing.

Fig. 1, is a front view;

Fig. 2, is a back view;

Fig. 3, is an end view; and

Fig. 4, a transverse section, of apparatus constructed according to my invention. The apparatus shown is arranged with five dibbles

nine inches apart, but other similar apparatus may be constructed with more or less dibbles. *a*, is the upper handle and frame, to the lower bar of which the dibbles are fixed ; *b*, the under handle to which the trough, *c*, is fixed. Within the trough is a sliding bar, *d*, having a hole, *e*, through it for each of the dibbles, and it is by means of this hole that the grain or seed is allowed to fall when the bar, *d*, has been moved into a position to bring the holes in the bar to coincide with the inclined holes through the bottom of the trough, such inclined holes communicating with the holes or passages through which the dibbles slide at the back of the trough. The sliding bar, *d*, is moved to and fro by means of the curved lever, *f*, which passes through a slot formed in the lower bar of the upper handle frame, *a*, and the lower end of such lever passes into a slot formed in the bar, *d* ; hence, as the dibbles are moved up and down, the bar, *d*, will be slided to and fro at the bottom of the trough ; *g*, *g*, are brushes (capable of being shifted up and down, so as to suit sliding bars of different thicknesses when required for seeds of different sorts) fixed within the trough above, where the holes in the sliding bar, *d*, are required to deliver their contents to the inclined passages, and into the holes or guides through which the dibbles slide.

TESTIMONIALS.

From the Rev. T. Philpotts.

Perthgwidden, Truro, Cornwall, December 3rd, 1858.

Sir,—I have much pleasure in giving you the result of my experience with Sigma's Planter. October 16th, 1857, I planted three gallons of wheat on half an acre of land, against half an acre drilled with six gallons in the same field, (a clover ley without manure in either instance). The crop was reaped July 27th, 1858. The half acre planted, produced 842 sheaves; the half acre drilled, 760 sheaves. To test the produce, one row of each, containing 210 sheaves (each row), was threshed separately. The planted yielded ten bushels two gallons imperial measure; the drilled nine bushels four gallons. It will be seen that both crops were greatly above the average; but while the planted produced forty-one bushels in the half acre, (ten quarters, two bushels per acre) the drilled gave only thirty-four bushels, three gallons, (eight quarters, four bushels, six gallons per acre), the difference per acre being thirteen bushels, two gallons, in favour of the yield of the planted. I have just planted four acres with this Planter; my man is now able to plant an acre a day. My object has been to give a plain statement of facts: if I have failed, pray ask for explanation.

Your obedient servant,

T. Philpotts.

Manor House, Brighton,
November 5th, 1858.

SIR,—My mangold wurtzel crops planted with your depositor have turned out excellent—in fact, over an area of upwards of fifty acres planted with it, scarcely a square yard missed plant. My man planted two acres of mangold a day. I have planted 40 acres of wheat with the same implement; my man planted in September 21½ acres in 17¾ days, using 15¼ bushels of wheat. It is all up beautifully, and a most perfect plant: all who visit it declare it quite thick enough, and very satisfactory: some, when they hear that only 5½ gallons of seed per acre were used, shake their heads. I am now (November 5th) putting in a bushel per acre. This is the second year of my using your planter, and I intend next year using it to a much greater extent.

Your obedient servant,
FREDERICK F. HALLETT.

Walpole St. Peter, near Lynn, Norfolk,
November 5th, 1858.

SIR,—I consider "Sigma's Planter" a most excellent implement. I have put in 25 acres of wheat with the two Planters, and now that the wheat is up I am quite satisfied with the result so far. I have put in nine acres with two pecks, and the remainder with four pecks, being afraid to trust all to the smaller quantity. I intend using it for barley and beans in the spring, having no doubt but that I shall like it as well for them as for wheat. I put in 20 acres of mangold with

the planter last spring, and do not hesitate to say it was the best plant in my neighbourhood. For the future, I never intend to seed my mangold wurtzel in any other way. Many are waiting the result of my wheat at harvest; and if it turns out as I expect, several about here will try it also.

Your obedient servant,
WILLIAM NORTH PYCROFT.

Epperstone Rectory, Southwell, Notts,
November 1st, 1858.

SIR,—This is the second season I have used your Corn Planter. I highly approve of the implement, and feel persuaded if the seed be planted sufficiently early, and not liable to the attacks of rooks, that none but those who have seen the produce can form any idea what dibbled wheat is, as to yield and quality. I have not yet thrashed mine out, but estimate it at *one-third* per acre more than my broadcast crop. An agricultural friend who was passing my stacks was astonished at the straw and ears, and carried off some to shew his friends. I find the scoffers of last year now only too ready to borrow my planter this season, and my man has planted four or five lots for different cottagers. I have five acres seeded with the Planter at different times this season: it is all looking *most* splendid, and I hope will be the means of your gaining many converts to your system. I mean to plant in the Spring my mangold, barley, &c., with the implement.

Your obedient servant,
H. S. CHAMPNEYS.

Hartley Grange, near Winchfield, Hants,
October 20th, 1857.

SIR,—I planted in May four acres of mangold with the Corn Planter. As the deposits were made nine inches apart, I took out every other root to feed the cows and pigs. The result at harvest on the four acres was 3,200 bushels. Towards the end of last month and the beginning of the present, I planted six acres of wheat with the implement. The greater part of the wheat is now up, and the plant is very even and regular. I have a good many more acres still to plant.

Your obedient servant,
H. BLAND.

(*Gardener's Chronicle, September* 19*th,* 1857.)

In February last I planted four gallons of Spring wheat, as an experiment, on an acre and ten rods, with Sigma's Corn Planter; and on the remainder of the acre I planted half-a-gallon of barley. The produce was 54 bushels of Spring wheat, and seven bushels of barley—in all 61 bushels of grain.

JAMES BRISSENDEN.

Broomden Farm, Ticehurst, Sussex.

4, *Kerr Street, Northampton.*

SIR,—I have just thrashed out my barley grown from the "Corn Planter." The yield was ten quarters of grain per acre, and two tons six cwt. of straw.

Your obedient servant,
W. GRIFFIN.

Maldon, Essex, November 27th, 1857.

SIR,—The maximum quantity of seed wheat we drill per acre is one bushel. That which we have planted with "Sigma's Corn Planter" is side by side with the drilled. The seed used was half-a-bushel to the acre; it is more promising than that drilled at one bushel.

Your obedient servants,
HARDY AND SON.

(*Morton's New Farmer's Almanac*, 1858. *Page* 11.)

Sigma's Hand Corn Planter, a very efficient implement. We can speak of its efficiency from personal experience.

Conghurst, Hawkhurst, Kent,
June 10th, 1858.

SIR,—I am obliged by your note of the 7th, and for the information continued in the enclosed letter from Mr. Hallett, which I return. This being the first year (received February 26th, 1858) of my trying your dibble, I have not given it such a trial as will enable me fully to report thereon; but from the experience I have had, I shall be induced to plant some wheat, *all* my beans, and *all* my wurtzel with your dibble for the future, feeling convinced there is a great saving in manual labour, in seed, and, above all, it must be the perfection of a system of planting wheat, wurtzel, and beans, each of which require to be firmly fixed in the soil when planted.

In confirmation of my assertion, will you kindly send me another dibble like the one I have had; forward me the account of the two.

I am, Sir,
Your obedient servant.
JESSE PIPER.

November 1*st*, 1858. Twenty acres of wheat have been "planted" this season at Conghurst.

Fox Hall, July 1*st*, 1858.

MR. POWELL,

SIR,—I should like to have three Planters to be got ready for me. I wish to have Planters suitable for wheat, barley, oats, and beans. I presume the same will do for every description of corn with different slides added.

Depend upon it, I will not be idle in testifying to the excellence of the dibble. I know well the struggle the machine has had to encounter.

I am, Sir,
Yours obediently,
S. B. TAYLOR.

SIR,—Having seen Sigma's Bean Dibble advertised, and having carefully examined it at the Baker-street Show at Christmas last, I procured one, and having given it a fair trial, I think it but right to state an opinion upon it, being a new implement. The ground I used it on was a very stiff marl; a portion of the field had been turned up in the winter, and had got pulverized; the other portion had not been ploughed since harvest. I therefore selected this field, in order that

I might give the dibble a good trial. I planted two bushels to the acre, and the result is, that upon the pulverised part one man planted with ease one acre per day, and had anyone been with him, even a boy, to have assisted him in moving the line, my opinion is he could have done more than an acre a day; on the other part he could not quite manage an acre. I would not let the man have any assistance, because I wanted to ascertain the exact working of the implement. The beans were well and regularly planted, and covered so well, that at first I doubted if the bean was in the hole; but, upon careful examination, I found a bean in every hole I tried. The implement itself is most simple, and, as far as I can at present see, not liable to get out of order. I worked it myself for some time, and found it exceedingly easy; and my man assured me that after he had used it an hour, and got used to it, he did not feel the slightest degree of awkwardness about it. I can strongly recommend it to anyone for planting, and if the result of the cropping turns out well, I consider it will be a great boon to the farmers in general, the price being within the reach of everyone.

I am, Sir,

Yours obediently,

J. ARNOLD.

Moore Green, Mosely,
April 13th, 1858.

Llanvaply Rectory, Abergavenny.

SIR,—I have seen enough of the Planter to believe that, for wheat-sowing, it is one of the

most valuable boons ever given to agriculturists, and I intend to employ it in the autumn for all the wheat I plant.

Yours faithfully,
C. F. PIGOTT.

Mr. C. POWELL,
Ticehurst, Hurst Green, Sussex.

Elford's, Hawkhurst, May 29th, 1858.

SIR,—I have planted five acres of beans and four acres of wurtzel with the implement I had of you, and am so well satisfied with its performance that I must request you to let me have another with five depositors for wheat, as I intend to plant all my wheat with it.

Believe me, yours faithfully,
E. G. HARTNELL.

P.S.—I have not had any of the hoes. Perhaps the first time you are sending this way, you will send me one of each sort—I mean one with two necks, and one with one.

July 20th, 1858.

SIR,—Please send me another Planter complete for all seed.

Your obedient servant,
E. G. HARTNELL.

East Grinstead, June 7th, 1858.

SIR,—In reply to your enquiries, my corn planted by your dibble is looking well. This

year my wheat is in the poorest part of my ground; next year I shall have two of my best fields for it, and adjoining the highway. I at present feel satisfied nine inches is the best distance for the poorer soil, and twelve inches best for good land. I have horse-harrowed this Spring as an experiment, which I find does not displace the seed, and leaves the surface in a condition less likely to run, should rain fall shortly after planting. Early planting I think the sheet anchor of the system. Next year I intend the man to cross the lands when planting; thus he will have a more even surface to work on, which I think will be found preferable.

I am, Sir,
Yours very faithfully,
JOSEPH SHEPPARD.

11, *Great Stuart Street, Edinburgh, March 12th*, 1858.

LORD MURRAY approves very much of the draw-shave hoes which have been sent to him, and encloses a post-office order. He wishes to have four more sent to him, two of the smallest size and two of the double kind. He would prefer the distance between the double hoes to be about one inch greater.

Barton Hill, Silsoe Beds, May 19th, 1858.

SIR,—Will you have the goodness to send me four more of your double hoes to the Hitch

Station, at your earliest convenience. The Patent Depositor answers remarkably well.

Yours very respectfully,
THOMAS BATES.

Mr. C. POWELL.

Barton Hill, Silsoe Beds,
May 28th, 1858.

MR. C. POWELL,—My father has seen the double hoes I had of you, and he wished to have six like mine ; therefore, if you will send to the same address as mine, I can send them to him. He wants them directly.

Yours very truly,
THOMAS BATES.

Hurtley Grange, Winchfield, Hants,
June 8th, 1858.

MR. BLAND begs to inform Mr. POWELL that his dibbled wheat is looking very well, and that which was put in early is coming into ear.

As the season advances, Mr. Bland will have much pleasure in giving Mr. Powell another report.

Eastwood Park, Berkeley, Gloucestershire,
May 11th, 1858.

SIR,—I received your draw-shave-hoe, and like it very much. A man can do a great deal more work with it than he can with a common hoe.

Your Aphis Powder is very useful for peach trees or plants that cannot conveniently be smoked with tobacco.

Let me know what I have to pay. Send another packet of your powder and another hoe and your bill as soon as possible. I want the powder for the roses. Don't lose a day; remember time is everything.

Your obedient servant,

T. RUST.

To C. POWELL.

Rose Hill, Oxford, July 5th, 1858.

SIR,—I have half-an-acre of wheat dibbled with Sigma's Planter at nine inches square, against an acre drilled in the usual way. The drilled wheat has ears with 18 to 21 rows of flowrets, the dibbled from 25 to 30; *i.e.*, the produce *per ear* is from a fourth to a third superior to the ordinary grown. The question of the relative produce per acre has yet to be seen.

Your obedient servant,

JOHN SLATTER.

MR. POWELL.

Holbeam Wood, Ticehurst, Hurst Green, July 9th, 1858.

I HAVE this day examined a field of beans of eight acres, the whole of which is considered a very promising crop, drilling and broadcasting being general about here for beans. I used Sigma's Bean Planter for an acre only of

this crop, never having tried dibbling. I felt doubtful as to the result. I now only regret I had not courage enough to dibble the whole of the eight acres; for, from what I have seen, I have thorough confidence in the system, and shall in future use this Planter for all my beans; for I find where they were dibbled the haulm is stronger, the pods larger and more developed; and above all a promise of one quarter per acre more than the rest of the field; and what I consider of equal importance, I have been able to thoroughly clean and work the land for the wheat crop by horse-power.

Your obedient servant,
SAMUEL TOMPSETT.

MR. C. POWELL.

The Hall House, Hawkhurst, Kent,
November 20th, 1858.

SIR,—I have now used "Sigma's Planter" two seasons for Mangold. I have each time had a perfect plant. I intend always to adopt the same method.

Your obedient servant,
F. A. YOUNG.

Little Whiligh, Wadhurst, Sussex,
November 24th, 1858.

SIR,—The best crop of Wheat we ever grew on the Whiligh estate, was from Sigma's Planter.

I am using it this season, and the plant is now looking well.

I am, Sir,
Your obedient servant,
JOHN DURRANT,
Steward to George Courthorpe, Esq.

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*Hardwicke R***, near Gloucester,*
November 27th, 1858.

SIR,—My Winter Beans, put in with your Planters, look first-rate. The men who follow bunching (*i. e.* dibbling) in this neighbourhood, I hear are beginning to growl much at my bunching machines. They make quite a harvest with dibbing with irons and dropping. A farmer who has seen my Winter Beans has engaged with me to bunch all his Spring Beans. The manager from Eling R***, Southampton, also the manager of the Bedford R***, were here the other day, and both intend to have Planters from you.

Your obedient servant,
THOMAS GEE.

Bryntisilio, Llangollen, N. Wales,
October 28th, 1858.

SIR,—Please to send me another of Sigma's Planter, complete for all seed.

Your obedient servant,
R. ELLERTON.

Rucklaw, Prestonkirk, Scotland,
October 7th, 1858.

SIR,—The two Planters arrived safely. Now that I have tested them, I should feel obliged by your sending me two more immediately, also the Hoes I ordered of you.

Your obedient servant,
THOMAS BUCHAN SYDSERFT.

Mortivals, Takely, Essex,
October 1st, 1858.

SIR,—The second Planter has arrived; also the receipt for the post-office order for the first. Please to send me immediately another Planter with five depositors. I find them accomplish their work very well.

Yours obediently,
W. GREENE.

THE DRAW-SHAVE STEEL HOE.

This tool consists of a flat steel blade, about two inches wide, with both back and front edges sharpened; the blade varying in length from five inches to twelve, or for light soils, well pulverized, even up to fifteen inches long, so as to take a whole row of turnips, &c. The ends of this blade are turned up and prolonged so as to form the letter V, which is fitted at the angle to a wooden shaft. The action is thus:—The blade being placed flat on the soil, the tool is drawn two or three feet towards the operator, which effects the hoeing, and then thrust sharply back again, the back action scuffling the weeds; the blade is never lifted from the soil. The ends of the blade are turned up, allowing the hoe to approach close to the crop without disturbing it; the back edge does not require to be so sharp as the front edge, its office being merely to turn over the weeds that have been cut off by the forward cutting action. The blade clears the whole of the ground between the rows, cutting up close to the crop, and if the soil be suitable for its action, a labourer can in a day, with less fatigue, get over double the ground cleared by the common hoe, and make cleaner work. The action is not a chopping action, so that it is not fit for docks or large thistles; it is

intended to keep a crop clean from surface weeds, which it does effectually, with little labour and expense.

The following are some of the Testimonials that have been received from persons of undoubted veracity :—

Nurseries, Sawbridgeworth, Herts, November 19th, 1857.

Sir,—My son and self, together with a very old fashioned farmer, who happened to be here as the package of Sigma's Hoes arrived, were delighted with the efficiency and the simplicity of the idea. It will be quite a pleasure to use them on all soils at all loose and friable on the surface. One wonders that such a hoe has never been invented before; they will no doubt become universal.

Your obedient servant,
Thos. Rivers.

The Bower Nurseries, Maidstone, November 25th, 1857.

Sir,—I most willingly bear testimony to the "Draw-shave Hoe" over all I have seen. With ordinary skilled labour double the work can be done in the day, and with less fatigue than with the common hoe. I purpose using them generally next year in all my nurseries.

Yours obediently,
W. J. Epps.

Scotney Castle, Lamberhurst, Kent,
October 30th, 1857.

SIR,—Concerning your hoes I think they are the very best tools I every saw; a man can do twice as much work in a day with them, as he can with the common hoe. One great thing is that the men like them much better, the work being much easier; they are most excellent tools and ought to be more known.

Your obedient servant,
GEORGE WELLS.

Woodlands Nurseries, Maresfield, Sussex,
November 23rd, 1857.

SIR,—We have much pleasure in informing you that we have used the "Sigma Hoe" with good results; we have found it a very useful implement when the ground is neither too hard nor too soft, when it does its work well and enables the men to go over a considerable quantity of ground in a day.

Your obedient servants,
WOOD AND SON.

Huntley, Tunbridge Wells,
November 24th, 1857.

SIR,—Your hoes I like very much; they are much easier to use and more effective than the common hoe.

Your obedient servant,
C. JEDDERE FISHER.

From Professor Henslow.

Gardener's Chronicle,
August 8th, 1857.

Sigma's Hoe.—I am very much pleased with this new hoe. It is not so well calculated for very rough field work, as for thoroughly surface hoeing all drilled crops, turnips, parsnips, carrots, &c. From its backward and forward movement, it does its work more quickly, and in my opinion far better, than either the Dutch or the drawing hoe, hollowing the ground and completely destroying the roots of all surface weeds. I have also found it useful for scraping and clearing wide gravel drives and paths of moss and small weeds; in fact it has become quite a favorite here.

S. J. H.

THE APHIS POWDER.

A certain Remedy for destroying the Aphis, Hop, or Green fly. It is perfectly harmless to man and plants.

This remedy consists of a compound powder, called "Aphis Powder;" it is a very fine dust, being "chemically" not "mechanically" pulverized. When shaken from a dredger, or tin box, having one end covered with canvass, it flies out in a thick cloud, and if dusted on a plant covered with vermin, it insinuates itself into every part searching out and destroying all insect life. When once it comes in contact with the Aphis it proves certain death to it; for, like "Sinbad's Old Man of the Sea," it cannot be shaken off, the breathing pores of the insect, situated on each side of the abdomen, continually inspire the poison till death ensues. Insects, being covered with a waxy film, resist fluid poisons, however strong, in a great degree, and when the fluid ceases to be poured on them—the poison being then removed—they begin to recover, but they cannot resist the deadly effects of this powder.

N.B.—Keep the powder dry in wine bottles well corked. Place a small quantity of the powder in a match box, and tie a piece of canvass or muslin over it when required for use.

Price of the powder, 2s. per common wine bottle, sold in canvass packets, which may be paid in postage stamps up to 4s.

To destroy the Gooseberry Caterpillar.

Shake the dredger, containing the Aphis Powder, in the middle of the bush, the fumes will cause every Caterpillar to curl up, when a slight tap on the stem will precipitate them to the ground. A square cloth, having a slit in it to admit the stem, should be placed under the bush to catch the Caterpillars. Each bush can be cleaned in two or three minutes, and in large plantations many gallons of vermin can be destroyed in a day. A very ingenious dredger, called the "Bôite à Houppe," sold by Messrs. Burgess and Key, is the best contrivance I have seen for this purpose. A slight shake from this box causes the powder to escape in a cloud, and diffuse itself imperceptibly over the whole bush. This dredger, when fixed on a staff, is a most efficient sulphurator in case of mould on Hops. Its price is 2*s.* 6*d.*, but I believe smaller ones are made at a lower price.

This Powder kills the black Aphis like magic.

Testimonials of the destructive effects of the Aphis Powder.

From the Gardener's Chronicle, August 8th, 1857.

Sigma's Aphis Powder.—I have been lately trying this powder on Peach trees on walls. The result of my experiment is satisfactory, so much so that I regret I did not obtain a supply in

time for the first incursion of the blight in the spring. If I had made such timely application of it I should, I believe, have saved some valuable trees which are nearly destroyed by the Aphides, notwithstanding the free and reiterated application of the syringe. We are in this part of Kent in a most provoking contiguity to the Hop gardens, many of which are this year disastrously infected with the Aphis blight; hence the necessity for some more than ordinary safeguard against this pest. I think I am not wrong in repeating that we shall find such in "Sigma's Aphis Powder." I would make one remark on the application of the powder. It must come into complete contact with the Aphides, or no sufficient results can be expected. Before I applied for some of the powder to the agent at Hurst Green, I did not know Sigma's real name or whereabouts; I have since been favoured with a sight of his orchard houses, both for early forced fruit and late. For beauty, vigour, healthiness, and fruitfulness, I never saw the like of his trees. I have not myself been so fortunate as to succeed with fruit trees in pots, on Mr. Rivers's plan; but, notwithstanding my own shortcomings, I have always held against the dictum of I know not how many gardeners, that fruit trees might be so cultivated to perfection. The condition of "Sigma's" orchard houses justifies my confidence.—*J. W. F., Tunbridge Wells.*

From the Gardener's Chronicle,
September 19th, 1857.

Sigma's Aphis Powder.—I had some to try early in the spring, and it came to me fortunately

in time to attack the first brood of Aphides, just as they were becoming uncomfortably vigorous. A few ounces sufficed to dust liberally about 100 shoots which were covered. My first impression was that it was a failure, for a few hours after the blight were moving about as usual. The next day told a very different tale—the whole of the enemy had disappeared; and I noticed blight only in one part of my garden afterwards during the whole of the season.—*J. Slatter, Rosehill, Oxford.*

Sawbridgeworth, October 1st, 1856.

I cannot tell you how much I am pleased with the "Aphis Powder," for I think I see it will relieve nurserymen and gardeners from a load of anxiety. That you sent me for experiment I have found most efficacious in destroying Aphides. On some young shoots of trees covered with them, a small portion of the powder was dredged through a muslin cover placed over a small box; in the course of an hour not one was left alive. I may mention more particularly a young peach tree, which was covered with the brown peach Aphis; this, in common with others experimented on, had one gentle dredging; within an hour all dropped off dead. This Aphis is more tenacious of life than most others, and requires strong tobacco water applied two or three times to eradicate it perfectly. In my opinion this powder will prove an invaluable boon to Hop-growers, Nurserymen and Gardeners.

THOS. RIVERS.

The Horticultural Gardens,
Turnham Green, May 2, 1857.

Your Aphis Powder kills where it touches. My opinion of its merits, so far as I can judge from the limited number, is very favourable.

GEO. MCEWEN.

The Pamphlet styled "The New Method of Seeding" enters minutely into the system of dibbling and planting grain, and gives a full description of the Corn Planter invented by "Sigma," to carry out the system. It contains likewise other valuable and important information. Price 1*s.*

Prices of the "Multum in Parvo," with fittings to form the following Implements.

(See Engraving, page 3.)

No. 1.—The Drill Grubber and Horse-hoe, £3 5*s.*

No. 2.—Remove the tines, and replace them with the fitting for forming the Subsoil Plough, £1 12*s.*

No. 3.—Retain the Subsoil Plough, and add two curved knife coulters (4*s.*), to form the Deep Stirrer and Cultivator. The two coulters, 8*s.*

No. 4.—Remove the two coulters, and add to the Subsoil Plough the two sheet-iron mould-boards to form the Ridge Plough. Mould-boards and fittings, £1 2*s.*

No. 5.—Remove the mould-boards, and with nut and screw attach the two paring blades, with tranverse bars to keep them at the required width. This forms the Escaping Broad-share. Paring blades and fittings, £1.

The Frame complete with all the fittings, (any of which can be had separately), £7 7*s.*

Other forms can be arranged if requisite, as—two tines can be substituted for the curved coulters in No. 3. Two curved coulters behind in the wing-bars, with 3 tines in front, can be used, and two curved coulters and one tine in front. A razor-like share of any length, with shank, can be fitted to each wing-bar and to the central beam, if required; these would take three rows of turnips, &c.

The engravings having been made too hastily, do not convey the exact proportions of the different forms; they give only an idea how the fittings are arranged.

Prices of the Corn, Bean, Mangold Planter, &c. complete for all seed.

With five rows (and none are now made less), at six, seven, eight, and nine inches from each depositor, as may be required, the eight-inch being most useful, as sixteen inches from one depositor to another answers for Mangold, which is effected by not putting seed into two of the boxes ..... £3 10*s.*

With two extra seed slides to suit all other seeds, and one false bottom ..... — 6*s.*

£3 16*s.*

The above price includes all the improvements which have been recently made.

The five row Planter at six inches apart is made to suit the Lois Weedon Husbandry; every alternate seed-box can be left empty, or the Implement may be worked sideways up and down the rows, where the deposits would be at six inches apart.

Prices of the Bean Planter with double rows, as in the dark engraving.

With four depositors arranged thus:—two depositors at each end of the implement, to make rows of six inches apart, then an interval of twenty-six inches for horse-hoeing, and then two more depositors at six inches apart. This implement is only suited for Beans and Peas, an account of the wide space for horse-hoeing, and it has no extra seed-slide. It is strongly recommended. £3 15*s.*

Prices of the Draw-Shave Steel Hoe.

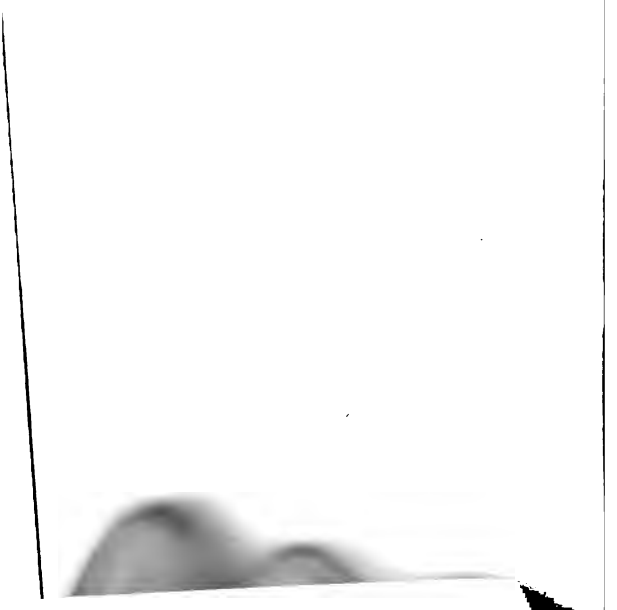
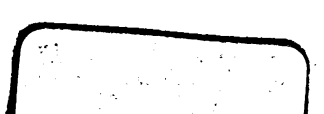
Any size up to eight inches wide, 4*s.*; for every inch beyond this width, 6*d.* extra. It is made up to fifteen inches wide, which size will take the whole interval between two rows of turnips, &c.; and if the land be light or well cultivated, an acre and a half up to two acres a day, can be cleared of surface weeds. Price of hoe for two rows, with two necks and blades, the row of corn, &c., passing between the necks, made to suit the Corn Planters, 6*s.*

Price of the Pastoral Crook Cultivator, 1*s.* 6*d.*

As these implements are in great demand, an early application is necessary.

As the price fixed will not allow of a percentage, Mr. Charles Powell, of Hurst Green, Sussex, has been appointed Sole Agent. Carriage of goods paid to London.

Mr. Powell is also Agent for the Aphis or Insect Powder, particulars of which would be sent on application.

See descriptions and testimonials of the Draw-Shave Hoe, also engravings of the Planter, and many interesting letters from well-known agriculturists, in 5th and 6th editions of the Corn Planter, price 6*d.*

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